

10/520,763

FILE 'HOME' ENTERED AT 20:52:13 ON 01 NOV 2007

=> caplus

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=> file caplus

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

0.63

0.63

FILE 'CAPLUS' ENTERED AT 20:53:52 ON 01 NOV 2007

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FILE COVERS 1907 - 1 Nov 2007 VOL 147 ISS 19

FILE LAST UPDATED: 31 Oct 2007 (20071031/ED)

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=> s Microfluidic or microchip or micro-chip or micro (w) chip or microfabricated (5W) chip or microdevice or micro-device or micro (w) device or microchannel or micro-channel or micro (w) channel

8872 MICROFLUIDIC

1857 MICROFLUIDICS

9760 MICROFLUIDIC

(MICROFLUIDIC OR MICROFLUIDICS)

4464 MICROCHIP

1289 MICROCHIPS

4956 MICROCHIP

(MICROCHIP OR MICROCHIPS)

177488 MICRO

312 MICROS

177785 MICRO

(MICRO OR MICROS)

86359 CHIP

47435 CHIPS

115962 CHIP

(CHIP OR CHIPS)

198 MICRO-CHIP

(MICRO(W)CHIP)

177488 MICRO

312 MICROS

177785 MICRO

(MICRO OR MICROS)

86359 CHIP

47435 CHIPS

115962 CHIP
 (CHIP OR CHIPS)
 198 MICRO (W) CHIP
 3213 MICROFABRICATED
 86359 CHIP
 47435 CHIPS
 115962 CHIP
 (CHIP OR CHIPS)
 238 MICROFABRICATED (5W) CHIP
 805 MICRODEVICE
 883 MICRODEVICES
 1437 MICRODEVICE
 (MICRODEVICE OR MICRODEVICES)
 177488 MICRO
 312 MICROS
 177785 MICRO
 (MICRO OR MICROS)
 864851 DEVICE
 653924 DEVICES
 1240822 DEVICE
 (DEVICE OR DEVICES)
 842 MICRO-DEVICE
 (MICRO (W) DEVICE)
 177488 MICRO
 312 MICROS
 177785 MICRO
 (MICRO OR MICROS)
 864851 DEVICE
 653924 DEVICES
 1240822 DEVICE
 (DEVICE OR DEVICES)
 842 MICRO (W) DEVICE
 6635 MICROCHANNEL
 3414 MICROCHANNELS
 8235 MICROCHANNEL
 (MICROCHANNEL OR MICROCHANNELS)
 177488 MICRO
 312 MICROS
 177785 MICRO
 (MICRO OR MICROS)
 299809 CHANNEL
 170292 CHANNELS
 378461 CHANNEL
 (CHANNEL OR CHANNELS)
 1559 MICRO-CHANNEL
 (MICRO (W) CHANNEL)
 177488 MICRO
 312 MICROS
 177785 MICRO
 (MICRO OR MICROS)
 299809 CHANNEL
 170292 CHANNELS
 378461 CHANNEL
 (CHANNEL OR CHANNELS)
 1559 MICRO (W) CHANNEL
 L1 23087 MICROFLUIDIC OR MICROCHIP OR MICRO-CHIP OR MICRO (W) CHIP OR
 MICROFABRICATED (5W) CHIP OR MICRODEVICE OR MICRO-DEVICE OR
 MICRO (W) DEVICE OR MICROCHANNEL OR MICRO-CHANNEL OR MICRO (W)
 CHANNEL

=> s Electroosmotic or electro (w) osmotic or electro-osmotic
 5134 ELECTROOSMOTIC
 1 ELECTROOSMOTICS
 5134 ELECTROOSMOTIC

```

      (ELECTROOSMOTIC OR ELECTROOSMOTICS)
88898 ELECTRO
      8 ELECTROS
88905 ELECTRO
      (ELECTRO OR ELECTROS)
56946 OSMOTIC
      25 OSMOTICS
56957 OSMOTIC
      (OSMOTIC OR OSMOTICS)
      784 ELECTRO (W) OSMOTIC
88898 ELECTRO
      8 ELECTROS
88905 ELECTRO
      (ELECTRO OR ELECTROS)
56946 OSMOTIC
      25 OSMOTICS
56957 OSMOTIC
      (OSMOTIC OR OSMOTICS)
      784 ELECTRO-OSMOTIC
      (ELECTRO (W) OSMOTIC)
L2      5736 ELECTROOSMOTIC OR ELECTRO (W) OSMOTIC OR ELECTRO-OSMOTIC

```

```

=> s Electrophoretic
      95755 ELECTROPHORETIC
      10 ELECTROPHORETICS
L3      95757 ELECTROPHORETIC
      (ELECTROPHORETIC OR ELECTROPHORETICS)

```

```

=> s Electrophoresis
      219190 ELECTROPHORESIS
      2 ELECTROPHORESISES
L4      219190 ELECTROPHORESIS
      (ELECTROPHORESIS OR ELECTROPHORESISES)

```

```

=> s Electrochromatograph#####
L5      3845 ELECTROCHROMATOGRAPH#####

```

```

=> s Chromatograph#####
      425411 CHROMATOGRAPH#####
      650229 CHROMATOG
      3551 CHROMATOGS
      652798 CHROMATOG
      (CHROMATOG OR CHROMATOGS)
L6      799460 CHROMATOGRAPH#####
      (CHROMATOGRAPH##### OR CHROMATOG)

```

```

=> d his

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      (FILE 'HOME' ENTERED AT 20:52:13 ON 01 NOV 2007)

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      FILE 'CAPLUS' ENTERED AT 20:53:52 ON 01 NOV 2007

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L1      23087 S MICROFLUIDIC OR MICROCHIP OR MICRO-CHIP OR MICRO (W) CHIP OR
L2      5736 S ELECTROOSMOTIC OR ELECTRO (W) OSMOTIC OR ELECTRO-OSMOTIC
L3      95757 S ELECTROPHORETIC
L4      219190 S ELECTROPHORESIS
L5      3845 S ELECTROCHROMATOGRAPH#####
L6      799460 S CHROMATOGRAPH#####

```

```

=> s L2 or L3 or L4 or L5 or L6
L7      1033696 L2 OR L3 OR L4 OR L5 OR L6

```

```

=> s L1 or L7
L8      1052956 L1 OR L7

```

```

=> s ((Polyhedral or cage) (p) (Polysilsesquioxane# or polyorganosilsesquioxane# or
organopolysilsesquioxane# or silsesquioxane# or octasilsesquioxane#)) or POSS
    6787 POLYHEDRAL
    18 POLYHEDRALS
    6800 POLYHEDRAL
        (POLYHEDRAL OR POLYHEDRALS)
24701 CAGE
10580 CAGES
32147 CAGE
    (CAGE OR CAGES)
    669 POLYSILSESQUIOXANE#
    114 POLYORGANOSILSESQUIOXANE#
    10 ORGANOPOLYSILSESQUIOXANE#
12610 SILSESQUIOXANE#
    208 OCTASILSESQUIOXANE#
1289 (POLYHEDRAL OR CAGE) (P) (POLYSILSESQUIOXANE# OR POLYORGANOSILSE
SQUIOXANE# OR ORGANOPOLYSILSESQUIOXANE# OR SILSESQUIOXANE# OR
OCTASILSESQUIOXANE#)
1144 POSS
1190 POSSES
2334 POSS
    (POSS OR POSSES)
L9      2805 ((POLYHEDRAL OR CAGE) (P) (POLYSILSESQUIOXANE# OR POLYORGANOSILS
ESQUIOXANE# OR ORGANOPOLYSILSESQUIOXANE# OR SILSESQUIOXANE# OR
OCTASILSESQUIOXANE#)) OR POSS

=> s Methacryl##### or acryl##### or meth (w) acryl#####
    271397 METHACRYL#####
    431383 ACRYL#####
    39687 METH
    3 METHS
    39689 METH
        (METH OR METHS)
    431383 ACRYL#####
    35620 METH (W) ACRYL#####
L10     567454 METHACRYL##### OR ACRYL##### OR METH (W) ACRYL#####

=> s L9 (L) L10
L11     221 L9 (L) L10

=> d his

(FILE 'HOME' ENTERED AT 20:52:13 ON 01 NOV 2007)

FILE 'CAPLUS' ENTERED AT 20:53:52 ON 01 NOV 2007
L1      23087 S MICROFLUIDIC OR MICROCHIP OR MICRO-CHIP OR MICRO (W) CHIP OR
L2      5736 S ELECTROSMOTIC OR ELECTRO (W) OSMOTIC OR ELECTRO-OSMOTIC
L3      95757 S ELECTROPHORETIC
L4      219190 S ELECTROPHORESIS
L5      3845 S ELECTROCHROMATOGRAPH#####
L6      799460 S CHROMATOGRAPH#####
L7      1033696 S L2 OR L3 OR L4 OR L5 OR L6
L8      1052956 S L1 OR L7
L9      2805 S ((POLYHEDRAL OR CAGE) (P) (POLYSILSESQUIOXANE# OR POLYORGANOS
L10     567454 S METHACRYL##### OR ACRYL##### OR METH (W) ACRYL#####
L11     221 S L9 (L) L10

=> s L7 and L11
L12     9 L7 AND L11

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(FILE 'HOME' ENTERED AT 20:52:13 ON 01 NOV 2007)

FILE 'CAPLUS' ENTERED AT 20:53:52 ON 01 NOV 2007

L1 23087 S MICROFLUIDIC OR MICROCHIP OR MICRO-CHIP OR MICRO (W) CHIP OR
L2 5736 S ELECTROSMOTIC OR ELECTRO (W) OSMOTIC OR ELECTRO-OSMOTIC
L3 95757 S ELECTROPHORETIC
L4 219190 S ELECTROPHORESIS
L5 3845 S ELECTROCHROMATOGRAPH#####
L6 799460 S CHROMATOGRAPH#####
L7 1033696 S L2 OR L3 OR L4 OR L5 OR L6
L8 1052956 S L1 OR L7
L9 2805 S ((POLYHEDRAL OR CAGE) (P) (POLYSILSESQUIOXANE# OR POLYORGANOS
L10 567454 S METHACRYL##### OR ACRYL##### OR METH (W) ACRYL#####
L11 221 S L9 (L) L10
L12 9 S L7 AND L11

=> d L12 1-9 ibib so abs

L12 ANSWER 1 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2007:961366 CAPLUS <<LOGINID::20071101>>

TITLE: Thermal stability of POSS/methylsilicone
nanocomposites

AUTHOR(S): Liu, Y. R.; Huang, Y. D.; Liu, L.

CORPORATE SOURCE: Polymer Materials and Engineering Division, Department
of Applied Chemistry, Faculty of Science, Harbin
Institute of Technology, Harbin, 150001

SOURCE: Composites Science and Technology (2007), 67(13),
2864-2876

CODEN: CSTCEH; ISSN: 0266-3538

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

SO Composites Science and Technology (2007), 67(13), 2864-2876
CODEN: CSTCEH; ISSN: 0266-3538

AB Methylsilicone nanocomposites containing polyhedral oligomeric
silsesquioxane (POSS) were prepared, including three kinds
of POSS silanols (TriSilanolPhenyl-POSS,
TriSilanolIsobutyl-POSS and MonoSilanolIsobutyl-POSS)
reinforced methylsilicone through chemical modification method and one kind
of non-hydroxyl-containing POSS (Methacryl-POSS)
modified methylsilicone through phys. blend. The structures of the
obtained hybrid materials were characterized with Gel Permeation
Chromatograph (GPC), Fourier transform IR (FTIR) and transmission
electron microscopy (TEM). The GPC and FTIR spectra suggested successful
bonding of three kinds POSS silanols and methylsilicone resin.
TEM anal. showed that POSS silanols can dissolve in
methylsilicone resin at the mol. level. However, there was some
aggregation of Methacryl-POSS in the polymer resin
systems. Thermal stability of POSS/methylsilicone
nanocomposites was investigated by thermogravimetric anal. (TGA),
solid-state ²⁹Si NMR and XPS. All these techniques showed that
POSS incorporation result in increased decomposition temps. and thermal
oxidation resistance. Chemical bonded POSS silanols reinforced
methylsilicone nanocomposites are thermally more stable than the original
methylsilicone, primarily by reducing the effects of silanol end groups on
the thermolysis through condensation reaction of Si-OH groups and the
nanoscaled dispersion of POSS cages in methylsilicone
matrixes. For the phys. mixed system, the enhancement of thermal
stability could be mainly ascribed to the nanoreinforcement effect of
Methacryl-POSS on the polymer matrix. The formation of
protective inorg. SiO₂ layer and the hydrogen bonding existed between the
hydroxyl group and the siloxane groups of four kinds of POSS are
also important factors for the improvement of the thermal stability of

methyilsilicone

L12 ANSWER 2 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2007:825685 CAPLUS <<LOGINID::20071101>>
DOCUMENT NUMBER: 147:386312
TITLE: Synthesis and Characterization of Hyperbranched
Polyethylenes Tethered with Polyhedral Oligomeric
Silsesquioxane (POSS) Nanoparticles by Chain Walking
Ethylene Copolymerization with Acryloisobutyl-POSS
AUTHOR(S): Wang, Jianli; Ye, Zhibin; Joly, Helen
CORPORATE SOURCE: School of Engineering, Laurentian University, Sudbury,
ON, P3E 2C6, Can.
SOURCE: Macromolecules (Washington, DC, United States) (2007),
40(17), 6150-6163
CODEN: MAMOBX; ISSN: 0024-9297
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

SO Macromolecules (Washington, DC, United States) (2007), 40(17), 6150-6163
CODEN: MAMOBX; ISSN: 0024-9297

AB Hyperbranched polyethylenes containing covalently tethered polyhedral
oligomeric silsesquioxane (POSS) nanoparticles were
synthesized in this work by chain walking ethylene copolymn. with a
POSS macromonomer bearing a polar acrylate group,
acryloisobutyl-POSS. The unique hyperbranched chain topol. of
these polymers was achieved owing to the chain walking mechanism of the
Pd-diimine catalyst, [(ArN:C(Me)-(Me)C:NAr)Pd(CH3)(N.tplbond.CMe)]SbF6 (Ar
= 2,6-(iPr)2C6H3). Regardless of its bulky structure and polar nature,
the acryloisobutyl-POSS macromonomer was successfully copolymd.
to give a range of POSS-ethylene copolymers with the
POSS macromonomer content up to 35 wt %. A systematic study of
the effects of covalent POSS incorporation on the polymer
properties was undertaken using techniques including gel permeation
chromatog. with online viscometry (GPC-VIS), X-ray diffraction
(XRD), differential scanning calorimetry (DSC), thermogravimetric anal.
(TGA), and rheometry. It was found from GPC-VIS measurements that the
covalent incorporation of the high-mass POSS nanoparticles
reduces significantly the intrinsic viscosity of the copolymers compared
to homopolyethylenes of the same mol. weight, owing to the highly compact
spherical cage structure of the POSS nanoparticles.
Thermal studies confirm that the POSS incorporation enhances
significantly the thermal oxidative stability of the polymers in air, and
the copolymer glass transition temperature increases with POSS
macromonomer content. The XRD study showed aggregation of POSS
nanoparticles in the copolymers, leading to the formation of crystalline
POSS domains. Rheol. measurements demonstrate that the covalently
tethered POSS nanoparticles greatly reinforce polymer rheol.
properties. In particular, gel-like rheol. behavior was observed in the
POSS copolymers. This gelation behavior is attributed to the
aggregation/interactions of POSS nanoparticles, which lead to
the construction of a phys. network system throughout the polymer
nanocomposite materials.

REFERENCE COUNT: 53 THERE ARE 53 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 3 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2007:194168 CAPLUS <<LOGINID::20071101>>
TITLE: Self-assembly of methacrylic nanostructured
copolymers containing polyhedral oligomeric
silsesquioxanes
AUTHOR(S): Molina, D.; Levi, M.; Turri, S.; Penso, M.
CORPORATE SOURCE: Dipartimento di Chimica, Materiali e Ingegneria
Chimica "G. Natta", Politecnico di Milano, Milan,

SOURCE: 20133, Italy
e-Polymers (2007) No pp. given
CODEN: EPOLCI
URL: http://www.e-polymers.org/papers/sturri_260107.pdf
PUBLISHER: European Polymer Federation
DOCUMENT TYPE: Journal; (online computer file)
LANGUAGE: English

SO e-Polymers (2007) No pp. given

CODEN: EPOLCI

URL: http://www.e-polymers.org/papers/sturri_260107.pdf

AB Two hybrid copolymer series obtained by free-radical copolymerization of methacrylcyclohexyl Polyhedral oligomeric silsesquioxane (POSS) with Bu methacrylate or 2-ethylhexylmethacrylate were characterized by ¹H-NMR spectroscopy, gel permeation chromatography (GPC), X-rays Diffraction (XRD), differential scanning calorimetry (DSC) and thermo-gravimetric analysis (TGA). Reactivity ratios were calculated by low yield composition data

suggesting

the formation of random copolymers with low probability of poly-POSS sequences. XRD studies showed the crystallization behavior of the inorganic phase independently on the POSS content; however sample processing by solvent casting effectively hindered the copolymer self-assembling ability. DSC suggests the formation of polyphasic structures with T_g increasing with POSS content, and with endothermal peaks occurring at higher temperature. Finally TGA shows an

improved

thermal stability of hybrid copolymers with char yield correlated to the level of inorganic phase.

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RECORD FORMAT

L12 ANSWER 4 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:1322960 CAPLUS <<LOGINID::20071101>>

DOCUMENT NUMBER: 147:26189

TITLE: N-methacryloyl-(L)-histidine methyl ester carrying porous magnetic beads for metal chelate adsorption of cytochrome c

AUTHOR(S): Akkaya, Birnur; Uzun, Lokman; Candan, Ferda; Denizli, Adil

CORPORATE SOURCE: Department of Chemistry, Cumhuriyet University, Sivas, Turk.

SOURCE: Materials Science & Engineering, C: Biomimetic and Supramolecular Systems (2007), 27(1), 180-187
CODEN: MSCEEE; ISSN: 0928-4931

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

SO Materials Science & Engineering, C: Biomimetic and Supramolecular Systems (2007), 27(1), 180-187

CODEN: MSCEEE; ISSN: 0928-4931

AB A magnetic metal-chelate adsorbent utilizing N-methacryloyl-(L)-histidine Me ester (MAH) as a metal-chelating ligand was prepared. MAH was synthesized using methacryloyl chloride and L-histidine Me ester. Magnetic beads with an average diameter of 50-100 µm were produced by suspension polymerization of ethylene glycol dimethacrylate (EGDMA) and MAH carried out in a dispersion medium. Specific surface area of the magnetic beads was found to be 80 m²/g. Elemental analysis of the magnetic beads for nitrogen was estimated as 70 µmol MAH/g polymer. Magnetic beads were complexed with the Cu²⁺ ions directly via MAH for the adsorption of cytochrome c from aqueous solutions. The cytochrome c adsorption on the mag-poly(EGDMA-MAH) beads was 51 mg/g. Cu²⁺ complexing increased the cytochrome c adsorption significantly. The maximum cytochrome c adsorption

capacity of the Cu²⁺-chelated beads (carrying 68 μmol Cu²⁺ per g of polymer) was found to be 222 mg/g at pH 8.0 in phosphate buffer. Cytochrome c adsorption decreased with increasing temperature. Cytochrome c mols. could be reversibly adsorbed and desorbed ten times with the magnetic adsorbents without noticeable loss in their cytochrome c adsorption capacity. The resulting magnetic chelator beads possess excellent long term storage stability.

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 5 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:964381 CAPLUS <<LOGINID::20071101>>

DOCUMENT NUMBER: 145:489783

TITLE: Investigation of thermodynamic properties of poly(methyl methacrylate-co-n-butyl acrylate-co-cyclopentyl styryl-polyhedral oligomeric silsesquioxane) by inverse gas chromatography

AUTHOR(S): Zou, Qi-Chao; Zhang, Shi-Ling; Wang, Shi-Min; Wu, Li-Min

CORPORATE SOURCE: Faculty of Chemistry and Material Science, Hubei University, Wuhan, 430062, Peop. Rep. China

SOURCE: Journal of Chromatography, A (2006), 1129(2), 255-261
CODEN: JCRAEY; ISSN: 0021-9673

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

SO Journal of Chromatography, A (2006), 1129(2), 255-261
CODEN: JCRAEY; ISSN: 0021-9673

AB The thermodyn. properties of poly(Me methacrylate-co-Bu acrylate-co-cyclo-pentylstyryl polyhedral oligomeric silsesquioxane) (poly(MMA-co-BA-co-styryl-POSS)) were investigated by means of inverse gas chromatog. (IGC) using 20 different kinds of solvents as the probes. Some thermodyn. parameters, such as molar heats of sorption, weight fraction activity coefficient, Flory-Huggins interaction parameter, partial molar heats of mixing and solubility parameter were obtained to judge the interactions between POSS-contained polymers and solvents and the solubility of the polymers in these solvents. It was found that acetates, aromatic hydrocarbons and hydrocarbon halides were good solvents, n-hexane, ethanol, n-propanol, n-butanol and n-pentanol were moderate solvents, while n-heptane, n-octane, n-nonane, n-decane and methanol were poor solvents for all POSS-contained polymers within the exptl. temperature range. Incorporation of POSS in polymer increased the solubility of polymers in solvents, and the more the POSS in polymer was, the better the solubility was and stronger the hydrogen bonding interaction was, but the POSS content in polymers seemed to have no obvious influence on the solubility parameter of polymers.

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 6 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:228849 CAPLUS <<LOGINID::20071101>>

DOCUMENT NUMBER: 144:468715

TITLE: Surface characterization of poly(methyl methacrylate-co-n-butyl acrylate-co-cyclopentylstyryl-polyhedral oligomeric silsesquioxane) by inverse gas chromatography

AUTHOR(S): Zou, Qi-Chao; Zhang, Shi-Ling; Tang, Qing-qiong; Wang, Shi-Min; Wu, Li-Min

CORPORATE SOURCE: Faculty of Chemistry and Material Science, Hubei University, Wuhan, 430062, Peop. Rep. China

SOURCE: Journal of Chromatography, A (2006), 1110(1-2),
140-145
CODEN: JCRAEY; ISSN: 0021-9673
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
SO Journal of Chromatography, A (2006), 1110(1-2), 140-145
CODEN: JCRAEY; ISSN: 0021-9673
AB The surface properties of poly(Me methacrylate-co-Bu
acrylate-co-cyclopentylstyryl polyhedral oligomeric
silsesquioxane) (poly(MMA-co-BA-co-styryl-POSS)) were
studied by inverse gas chromatog. (IGC) using 10 non-polar and
polar solvents as the probes. Thermodyn. parameters of adsorption, e.g.,
specific retention volume, the dispersive component of the surface free
energy, the specific interaction contribution to the free energy of
adsorption and the acid/base consts. were obtained to study the
interactions between the surfaces of the copolymers and different
solvents. Incorporation of styryl-POSS into polymer resulted in
increasing interactions between polymers and solvents, dispersive
component of surface free energy of polymer and acidity of the surfaces of
the polymers. The more the styryl-POSS were embedded, the
stronger the interaction between the polymer surface and solvent, the
dispersive component of the surface free energy and the acidity of the
polymer surface were.
REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 7 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:727894 CAPLUS <<LOGINID::20071101>>
DOCUMENT NUMBER: 144:293510
TITLE: Plasma surface modification and characterization of
POSS-based nanocomposite polymeric thin films for
microfluidic devices
AUTHOR(S): Augustine, Brian H.; Hughes, Wm. Christopher;
Maidment, Jessica S.
CORPORATE SOURCE: Department of Chemistry, James Madison University,
Harrisonburg, VA, 22807, USA
SOURCE: Polymer Preprints (American Chemical Society, Division
of Polymer Chemistry) (2005), 46(2), 1267-1268
CODEN: ACPPAY; ISSN: 0032-3934
PUBLISHER: American Chemical Society, Division of Polymer
Chemistry
DOCUMENT TYPE: Journal; (computer optical disk).
LANGUAGE: English
SO Polymer Preprints (American Chemical Society, Division of Polymer
Chemistry) (2005), 46(2), 1267-1268
CODEN: ACPPAY; ISSN: 0032-3934
AB Thin films of the nanocomposite copolymer poly(Me methacrylate)-
polyhedral oligomeric silsesquioxane (PMMA-POSS
) were deposited via-spin casting from a THF solution onto glass and
polymeric substrates and modified in a remote oxygen plasma environment.
Contact angle measurements indicated a dramatic increase in hydrophilicity
with increasing plasma exposure from a contact angle >90° to
<10° after a 15 s plasma exposure. Time-of-flight secondary ion
mass spectroscopy (ToF-SIMS) data suggests that the iso-Bu groups present
around the POSS cage are selectively removed in the
first fifteen seconds of plasma exposure leaving a SiO_x-rich surface after
exposure. Plasma modified surfaces were deposited onto polymeric
microfluidic separation devices. Electro-osmotic flow
characteristics of glass, PMMA and PMMA-POSS coated surfaces
will be discussed.
REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 8 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2004:983328 CAPLUS <<LOGINID::20071101>>
 TITLE: Fabrication of Polymeric Microfluidic Devices
 AUTHOR(S): Lindamood, S. Rozine; Augustine, Brian H.; Maidment, Jessica
 CORPORATE SOURCE: Department of Chemistry, James Madison University, Harrisonburg, VA, 22807, USA
 SOURCE: Abstracts, 56th Southeast Regional Meeting of the American Chemical Society, Research Triangle Park, NC, United States, November 10-13 (2004), GEN-702. American Chemical Society: Washington, D. C.
 CODEN: 69FWAQ
 DOCUMENT TYPE: Conference; Meeting Abstract
 LANGUAGE: English
 SO Abstracts, 56th Southeast Regional Meeting of the American Chemical Society, Research Triangle Park, NC, United States, November 10-13 (2004), GEN-702 Publisher: American Chemical Society, Washington, D. C.
 CODEN: 69FWAQ
 AB Microfluidic devices were manufactured using poly(Me methacrylate) (PMMA). These devices were fabricated via hot embossing using an unpatterned piece of PMMA and a crystallog. etched silicon master. After hot embossing, a cover plate made of PMMA was thermally bonded to the PMMA channel in a similar process. To ensure complete bonding, a Me methacrylate (MMA) solution with UV initiator was injected around the edge of the chip, which sealed the unbonded spaces by capillary action. When exposed to UV light the initiator caused the MMA to polymerize and thus seal the two plates. Various channel designs were tested to determine the most effective configuration of the chip. In addition, PMMA chips were coated with nanocomposite thin films of PMMA - polyhedral oligomeric silsesquioxane (POSS). PMMA - POSS films were examined in order to modify the electro-osmotic flow (EOF) properties of the microchips and this will be discussed further.

L12 ANSWER 9 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 1998:131470 CAPLUS <<LOGINID::20071101>>
 DOCUMENT NUMBER: 128:138335
 TITLE: Process for the production of gel particles with an aspecific binding core and a size-selective outer layer and their application for separation of components from solutions
 INVENTOR(S): Gorog, Gyorgy; Lengyel, Zsolt; Graf, Laszlo; Nemeth, Peter; Naray-Szabo, Gabor; Petho, Arpad; Rakosi, Krisztina
 PATENT ASSIGNEE(S): Hung.
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 AB The invention concerns gel particles with an aspecific binding core and size-selective outer layer that are suitable to sep. components from a solution based on their size, by closing out the larger mols. and letting the smaller ones penetrate to the core, where they are bound by aspecific

forces. The mol. exclusion size of the outer layer corresponds to the virtual diameter of a globular protein of 3-1000 kD, the average diameter of the gel particles is 0.001-10 mm with maximum 20% deviation from the average. The core consists of either a polyacrylamide gel or a biopolymer with crosslinks and functional groups that can be either pos. or neg. charged, hydrophobic, and have increased activity or possess multiple aspecific binding capacity. The outer layer is bound to the core either covalently or by stable adsorption forces and is made either of a synthetic polymer, preferably acrylamide or a biopolymer, preferably dextran. The outer layer is either electrostatically neutral and does not contain hydrophobic groups or has groups which are oppositely charged to the functional groups in the core of the particle. The gel particles can separate large particles from small particles from a solution either in a batch mode or in a chromatog. column using higher than atmospheric pressure. Thus, conjugates used in diagnostic immunoassays can be purified, e.g. dextran-galactosidase conjugate will stay in solution while free galactosidase and other components of the conjugation reaction are removed by a gel consisting of polyacrylamide core and dextran outer layer.

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